

WHAT IS CLAIMED IS:

1. A method for dynamic bandwidth management proportionately distributing resource allocation within a time  
5 period as a function of an executing task, comprising:  
tagging system commands with a bandwidth identifier;  
setting bandwidth limits for resources with programmable  
hardware registers;  
issuing commands to managed resources;  
10 establishing a hardware bandwidth management system that  
indicates how the managed resources can be used during a  
programmable time slice; and  
issuing commands to unmanaged resources.
- 15 2. A multiprocessor computer system comprising:  
at least one managed resource;  
at least one unmanaged resource;  
at least one of programs and other entities that need to  
access a managed resource; and  
20 proportional resource allocation means operational to  
distribute commands and/or informational packets substantially  
evenly over an operational time period from a source to a  
managed resource.
- 25 3. The apparatus of claim 2 wherein:  
the managed resource is at least one of bus means, memory  
means and I/O means; and  
the programs and other entities can freely access  
unmanaged resources while being restricted in their access to  
30 managed resources.
4. A method of minimizing congestion in resource access

comprising the steps of:

    sending predetermined numbers of managed commands only during times permitted by a bandwidth control mechanism; and

    adjusting values inserted in programmable registers to  
5 set the number and timing of managed commands issued by a program.

5. A method of managing access to a given resource comprising:

10 authorizing, upon request from a program, a class ID for that program to use when accessing a given resource;

    checking all resource access attempts for a class ID indicating the access attempt is bandwidth managed; and

    allowing access attempts, having a class ID, to access a  
15 managed resource only at times substantially evenly distributed across an operational time period.

6. Apparatus for managing access to a given resource comprising:

20 authorizing means, in responding to a request from a program, operating to provide a class ID for that program to use when accessing a given resource;

    control means operable to check all resource access attempts for a class ID that provides an indication that the  
25 access attempt is managed; and

    further control means operable to provide signals that allow access attempts, having a managed class ID, to access a given resource only at times substantially evenly distributed across an operational time period.

30

7. A computer program product for minimizing congestion in resource access, the computer program product having a

medium with a computer program embodied thereon, the computer program comprising:

computer code for sending managed commands only during times permitted by a bandwidth control mechanism; and

5 computer code for adjusting values inserted in programmable registers to set the number and timing of managed commands issued by a program.